UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,788	10/20/2005	William J. Michie JR.	63138A	3958

109 7590 12/04/2008

The Dow Chemical Company
Intellectual Property Section
P.O. Box 1967
Midland, MI 48641-1967

EXAMINER	
TESKIN, FRED M	

ART UNIT	PAPER NUMBER
1796	

MAIL DATE	DELIVERY MODE
12/04/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/553,788	MICHIE ET AL.	
	Examiner	Art Unit	
	Fred M. Teskin	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5-13 and 19-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5-13 and 19-21* is/are rejected.

7)☒ Claim(s) *5,10,20 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 October 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

Applicants' election "with traverse" of the invention of Group II, claims 5-13 and 19-21, in the reply filed on August 29, 2008, is acknowledged. Because applicants did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Per the reply, claims 1-4, 14-18 and 22-25, drawn to the non-elected inventions of Groups I, III and IV, have been cancelled.

The abstract of the disclosure is objected to because of undue length. Correction is required. See MPEP § 608.01(b)(C).

Claim 5 is objected to because of the following informalities: the claim is informal due to the presence of an internal period (at the end of subparagraph 5)). Appropriate correction is required.

Claim 10 is objected to because of the following informalities: in subparagraph 3) of the claim, the two occurrences of "ii)" are redundant and "mixture" (vent) should be changed to –mixer- for consistency in terminology. Appropriate correction is required.

Claim 20 is objected to because of the following informalities: regarding the term "I^{21}/I^{2}", the superscripts should be rewritten as subscripts, to conform to the antecedent disclosure (*cf.*, page 19, line 12 of the specification). Appropriate correction is required.

Claim 21 is objected to because of the following informalities: in subparagraph 3) i) of the claim, the word "mixture" should be changed to -mixer- for consistency in terminology (*cf.*, first line of subparagraph 3)). Appropriate correction is required.

Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 19 is confusing and incomplete, in reciting "or both" where only one positive limitation is earlier recited and in stating incorrect units for that limitation, *viz*., KPa * m^3/kg instead of a time period (e.g., hours; *cf.* claim 20, ll. 1-2). The scope of the claim is not discernible with any reasonable certainty.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5-9 and 20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 6248831 ("Maheshwari").

Regarding claims 5-9 and 20, Maheshwari has disclosed a bimodal polyethylene resin blend suitable for extrusion into a film at high line speeds, the film having bubble strength and stability, particularly in terms of dart drop (col. 2, line 65 to col. 3, line 1 and col. 4, lines 22-23). The polyethylene blend comprises a high molecular weight (HMW) copolymer and a low molecular weight (LMW) copolymer, produced respectively in first and second fluidized bed, gas phase reactors using a titanium/magnesium catalyst. Specific disclosure is provided to blends wherein the LMW copolymer was produced using a molar ratio of α-olefin to ethylene lower than that used to produce the HMW copolymer; e.g., 0.027 and 0.0075 (C6/C2) in first (HMW) and second (LMW) reactors, respectively, which correspond to molar ratios used to prepare the high and low molecular weight fractions of the instantly claimed composition (see Examples 1-2 in cols. 11-13 and *cf.,* claim 7, subsections A) c) and B) c)). The product from the first reactor has a high load melt index (I 21.6) in the range of about 0.20 to about 5.0 g/10 min., a density in the range of 0.890 to 0.940 g/cc and a molecular weight of about 250,000 to about 600,000. The product from the second reactor has a melt index of 80 to 1000 g/10 min., a density of about 0.925 to 0.970 g/cc, and a molecular weight of about 15,000 to about 35,000; and the final blend is characterized by values of density, melt index (I 5), melt flow ratio (I 21.6/I 5) and molecular weight distribution (Mw/Mn) which fall fully within, or embrace, the corresponding property ranges defining applicants' claimed composition (see Maheshwari at col. 7, lines 40+ and *cf.*,

parameters 1) - 4) of claims 5-6). Further as to dart impact, note that values of 305 grams and 470 grams are reported in Examples 4 and 5, for 0.5 mil (or 12.5 micron) and 0.8 mil film samples, respectively. As such, Maheshwari appears to teach all the compositional and property limitations of the present invention but for a bubble stability as measured according to claims 5 and 9, and a NLCS and a ratio of flexural modulus to density as per claim 20, as to which Maheshwari is silent. Nevertheless, the undisclosed properties would reasonably be expected to inhere to the blend or final product disclosed by Maheshwari, based on the identity of the common properties and polymer composition and the similarity in preparation. In regard to the latter, note that Maheshwari teaches extruding the blend under controlled oxygen level at feed and vent ports, using a film extruder equipped with a screen pack at the downstream end (see col. 9, lines 60-65 and col. 15, lines 10-11), and as discussed above, demonstrates use of a lower molar ratio of α-olefin to ethylene to produce the LMW copolymer of the bimodal blend than the HMW copolymer. Similar conditions are used in preparation of the applicants' claimed composition (*cf*. Specification at page 5, lines 5-10). Where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness is established. *In re Best*, 195 USPQ 430, 433 (CCPA 1977).

Claims 10-13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maheshwari in view of US 6147167 ("Mack"), EP '769 ("Paina") and US 6485662 ("Neubauer").

Regarding product-by-process claims 10-13 and 21, Maheshwari lacks a disclosure of the claim limitations specifying use of an oxygen concentration of from about 0.05 to about 6 volume percent oxygen in nitrogen and of one or more active screens having a micron retention size of from about 2 to about 70, at a mass flux of about 5 to about 100 lb/hr/in^2. It is, however, conventional in the art to treat a polyethylene with oxygen at the claimed concentration level in order to obtain improvements in bubble stability upon conversion of the polymer into film by blown extrusion, as taught by Mack and Paina. Regarding improvements in bubble stability and oxygen concentration, see paragraphs [0007] and [0015] of Paina and Mack at column 2, lines 20-32; column 3, lines 56-62; column 5, lines 25-30 and column 7, lines 58+. According to Paina, paragraph [0016], the gas mixture containing oxygen may be brought into contact with the polyethylene in any part of the extruder, including the plasticization or melting zone. It is also conventional in the art to use active screens having a micron retention size of about 2 to about 70 to screen a molten polyethylene blend, as taught by Neubauer (see, e.g., col. 2, lines 35+). The blend is characterized as bimodal, with a broad molecular weight distribution, preferably about 20 to about 30, and the screening step is taught to improve film homogeneity, as reflected by FAR values of plus 20 or higher (see Neubauer at col. 7, lines 30-35 and col. 10, lines 43-46). Given that Maheshwari is similarly concerned with improving bubble stability and attainment of a film appearance rating ranging from plus 20 to plus 40 (see col. 15, lines 35-40), it would have been obvious to an ordinarily skilled practitioner at the time of the invention to utilize an oxygen concentration as per Paina or Mack and a screening

procedure as per Neubauer when extruding the bimodal blend disclosed by Maheshwari.

No claims are in condition for allowance at this time.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner F. M. Teskin whose telephone number is (571) 272-1116. The examiner can normally be reached on Monday through Thursday from 7:00 AM - 4:30 PM, and can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The appropriate fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Fred M Teskin/
Primary Examiner, Art Unit 1796

FMTeskin/12-01-08